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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/009,858
Filing Date: December 22, 2001
Appellant(s): RAAF, BERNHARD

Peter Zura
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 12/19/2007 appealing from the Office action mailed 4/20/2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

EP-0 893 889 A2	Uesugi et al.	1-1999
2001/0018741	Hogan	8-2001

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 25-32, 34-43 and 45-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uesugi et al. (EP 0 893,889 A2 hereinafter, Uesugi) in view of Hogan (US 2001/0018741).

Regarding claim 25, Uesugi teaches a method for controlling the transmission power in a radio system (Abstract) comprising:

evaluating a signal received by a receiver via a transmission channel of the radio system from a transmitter; (Col. 12 lines 21-26)

producing power control information as a function of the signal; (Col. 12 line 57 through Col. 13 line 2)

embedding the power control information in a timeslot structure together with further data to be transmitted in the same timeslot to said transmitter; (Col. 12 line 41 through Col. 13 line 2, Fig. 16A & Fig. 16B)

coding, in the receiver, the power control information in one time slot in a manner where the power control information is coded, with the addition of redundancy, together with further data to be transmitted in the same time slot to form a common data word; and (Col. 19 lines 48-51 and Fig. 16B)

transmitting the power control information in one timeslot to the transmitter, together with the further data to be transmitted in the same time slot; (Fig. 16B and Col. 19 lines 48-51) and

setting, in the transmitter, the transmission power as a function of the transmitted coded power control information. (Col. 12 line 41 through Col. 13 line 2)

Uesugi differs from the claimed invention by not explicitly reciting with at least one bit value in the data word depending on the power control information and on the further data.

In an analogous art, Hogan teaches a method and apparatus for performing encryption and error coding correction that includes the usage of an exclusive-OR logic operation (Page 1 [0012-0013] and Page 2 [0027]), wherein once the addition of error correction bits are added to a code word containing power control information and further data, at least one bit value (error correction bit) in the data word is depending on the power control information and on the further data. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to implement the method of power control of Uesugi after modifying it to incorporate the error coding correction of Hogan. One of ordinary skill in the art would have been motivated to do this since it enables a simple error correction that reduces the need for retransmission of lost data. (Page 1 [0003 & 0006])

Regarding claim 26, Uesugi in view of Hogan teaches the further data is data for format identification information. (Uesugi Fig. 5 pilot symbol “P”)

Regarding claim 27, Uesugi in view of Hogan teaches the further data is user data. (Uesugi Col. 8 line 34-38)

Regarding claim 28, Uesugi in view of Hogan teaches the power control information is transmitted in binary form. (Uesugi Col. 1 line 9)

Regarding claim 29, Uesugi in view of Hogan teaches the bits in the power control word comprises a plurality of bits corresponding to a sum of the bits in the power control information and the bits in the further data. (Uesugi Fig. 16B and Col. 19 lines 48-51)

Regarding claim 30, Uesugi in view of Hogan teaches the coded data word comprises a plurality of bits corresponding to a sum of the bits in the power control information and the bits in the further data. (Uesugi Fig. 11 and Col. 16 lines 37-40)

Regarding claim 31, Uesugi in view of Hogan teaches that during the coding process, at least one bit in the coded data word is assigned a value of the power control information to be transmitted in the corresponding time slot. (Uesugi Fig. 5A [TPC] and Col. 19 lines 48-51)

Regarding claim 32, Uesugi in view of Hogan teaches that during the coding process, at least one bit in the coded data word is assigned a value of the power control information to be transmitted in the corresponding time slot from the further data. (Uesugi Col. 19 lines 48-51)

Regarding claim 34, Uesugi in view of Hogan teaches during the coding process, at least one bit in the coded data word is assigned a value which corresponds to a logic operation between the power control information to be transmitted in the corresponding time slot and the information to be transmitted in the same time slot from the further data, (Uesugi Fig. 16A, Fig. 16B and Col. 19 lines 48-51) and a logic exclusive-OR operation as the logic operation used in the coding process for error recovery protection. (Hogan Page 1 [0012-0013] and Page 2 [0027])

Regarding claim 35, Uesugi in view of Hogan teaches recovering the power control information in the transmitter via appropriated decoding, with an estimate value being determined for the power control information during the decoding process based on the value obtained by the logic operation from the corresponding bit in the coded data word. (Uesugi Col. 12 line 9 through Col. 13 line 17 and Hogan Page 1 [0012-0013] and Page 2 [0027])

Regarding claim 36, Uesugi in view of Hogan teaches the receiver which produces the coded power control information is a base station in a mobile radio system and the transmitter which received the power control information and sets its transmission level appropriately is a mobile station in the mobile radio system, such that the coded power control information is transmitted via a downlink connection between the receiver and the transmitter. (Uesugi Fig. 4, Fig. 7 and Col. 10 line 13 through Col. 11 line 47)

Regarding claim 37, Uesugi teaches a radio system comprising:

a transmitter; (Fig. 4 [1105]) and

a receiver for receiving a signal from the transmitter (Fig. 4 [Base Station Side]), which is transmitted via a transmission channel of the mobile radio system (Col. 12 lines 21-26), wherein the receiver:

evaluates the received signal; (Col. 12 lines 41-47 and Col. 12 line 57 through Col. 13 line 2)

produce power control information as a function of the signal; (Col. 12 lines 21-26)

embeds the power control information in a time slot structure together with further data to be transmitted in the same timeslot to said transmitter; (Col. 12 line 41 through Col. 13 line 2, Fig. 16A & Fig. 16B)

codes the power control information in one time slot in a manner where the power control information is coded, with the addition of redundancy, together with further data to be transmitted in the same time slot to form a common data word; and (Col. 19 lines 48-51 and Fig. 16B)

transmits the coded power control information in one timeslot to the transmitter, together with the further data to be transmitted in the same time slot (Fig. 16B and Col. 19 lines 48-51) and wherein the transmitter sets the transmission power as a function of the transmitted coded power control information. (Col. 12 line 41 through Col. 13 line 2)

Uesugi differs from the claimed invention by not explicitly reciting with at least one bit value in the data word depending on the power control information and on the further data.

In an analogous art, Hogan teaches a method and apparatus for performing encryption and error coding correction that includes the usage of an exclusive-OR logic operation (Page 1 [0012-0013] and Page 2 [0027]), wherein once the addition of error correction bits are added to a code word containing power control information and further data, at least one bit value (error correction bit) in the data word is depending on the power control information and on the further data. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to implement the method of power control of Uesugi after modifying it to incorporate the error coding

correction of Hogan. One of ordinary skill in the art would have been motivated to do this since it enables a simple error correction that reduces the need for retransmission of lost data. (Page 1 [0003 & 0006])

Regarding claim 38, the limitations of claim 38 are rejected as being the same reason set forth above in claim 26.

Regarding claim 39, the limitations of claim 38 are rejected as being the same reason set forth above in claim 26.

Regarding claim 40, the limitations of claim 40 are rejected as being the same reason set forth above in claim 28.

Regarding claim 41, the limitations of claim 41 are rejected as being the same reason set forth above in claim 29.

Regarding claim 42, the limitations of claim 42 are rejected as being the same reason set forth above in claim 31.

Regarding claim 43, the limitations of claim 43 are rejected as being the same reason set forth above in claim 32.

Regarding claim 45, the limitations of claim 45 are rejected as being the same reason set forth above in claim 34.

Regarding claim 46, the limitations of claim 46 are rejected as being the same reason set forth above in claim 35.

Regarding claim 47, Uesugi in view of Hogan teaches the radio system is a CDMA mobile radio system. (Uesugi Col. 1 lines 15-27)

Regarding claim 48, the limitations of claim 48 are rejected as being the same reason set forth above in claim 36.

(10) Response to Argument

As an initial point, the examiner would like to object to the appellant's numbering/lettering scheme as being improper because the listed order under section VII is A, B, C, C.

In response to the appellant's argument that *the cited art, alone or in combination, fails to teach embedding the power control information in a timeslot structure together with further data to be transmitted in the same timeslot to said transmitter,* (Page 10), the examiner disagrees.

Uesugi teaches in Fig. 16A and Fig. 16B that the TPC (power control signals) data is encoded with pilot symbols (P's) and the other data (D0-D6) in the first slot of a transmission frame. (Col. 3 lines 16-19 and Col. 4 lines 6-7) The examiner views Uesugi's statement that Fig. 16A and Fig. 16B are the "diagrams for signal formats for the first slot" (Col. 4 lines 6-7) as meaning the power control information (*i.e.* TPC) is embedded in a timeslot structure (*i.e.* first slot) together with further data (*i.e.* pilot symbols and DO-D6) to be transmitted in the same timeslot to said transmitter (Col. 19 line 37 through Col. 20 line 9), as recited by claim 25.

In response to the appellant's argument that *the cited art fails to teach coding, in the receiver, the power control information in one time slot in a manner where the power control information is coded, with the addition of redundancy, together with the further data to be transmitted in the same time slot to form a common data word*, (Page 10), the examiner disagrees.

Uesugi teaches that the TPC (power control signals Fig. 17 [1107 & 1207]) data is created from the SIR measuring instrument (Fig. 17 [1108 & 1208]) and then encoded with pilot symbols (P's) and the other data (D0-D6) in the first slot of a transmission frame (Col. 3 lines 16-19, Col. 4 lines 6-7, Fig. 16A and Fig. 16B) prior to transmission.

With respect to the appellant's claim limitation "with the addition of redundancy", the examiner would like to reiterate the opinion that the object of the "redundancy" is not clearly claimed. The appellant could easily have amended the claim to state "redundantly coding, in the receiver, the power control information…" or "the power control information is coded redundantly", which would clearly inform anyone reading the independent claims exactly what information is being coded redundantly. However, as currently claimed, it is the examiner's position that Uesugi's disclosure of "the same data as the transmission data is repeatedly transmitted along with the transmission controlling information" (Fig. 16B and Col. 19 lines 46-52) meets the appellant's "with the addition of redundancy" limitation since the data is coded redundantly into the first slot. (Fig. 16B [DO, DO, D1, D1...])

With respected to the appellant's claim limitation "together with the further data to be transmitted in the same time slot to form a common data word", Uesugi teaches that

the TPC (power control signals Fig. 17 [1107 & 1207]) data is encoded with pilot symbols (P's) and the other data (D0-D6) in the first slot of a transmission frame (Col. 3 lines 16-19, Col. 4 lines 6-7, Fig. 16A and Fig. 16B), which the examiner views as anticipating forming a common data word with further data and power control information because a frame is defined as a logical unit of data, which commonly is a fragment of a much larger set of data, each fragment packaged into a frame format, comprising a header, payload and trailer. (Newton's Telecom Dictionary 20th Edition, Page 348) Therefore, it is the examiner's opinion that Uesugi's frame anticipates the appellant's common data word.

In response to appellant's argument that *the references fail to teach every element recited in the claims*, it is noted that the features upon which applicant relies (i.e., the further bits may be, for example, the bits in the TFI information [Page 10]) are not recited in the rejected independent claims 25 and 37. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to the appellant's statement that *Uesugi discloses a case where the transmission data rate is low, thus prompting the CDMA communication apparatus to repeatedly transmit transmission data along with the controlling information and transmission data* (Page 11 first full para), the examiner agrees.

Uesugi clearly teaches coding transmission data, pilot symbols and transmit power control signals repeatedly in a first time slot (Fig. 16B), which the examiner views as anticipating the appellant's claim limitations of coding power control information and further data in the same time slot to form a common data word, with the addition of redundancy. The examiner is not concerned with why Uesugi's teachings meet the "with the addition of redundancy" limitation, but that the appellant recognized Uesugi's teachings can be interpreted as redundantly coding. (Fig. 16B [DO, DO, D1, D1...])

In response to the appellant's argument that *the CDMA modulation of Uesugi does not represent the encoding process described in the present claims* (Pages 11 - 12), the examiner disagrees.

With respect to the coding occurring by the receiver, it is the examiner's opinion that in view of the *KSR v. Teleflex,* 127 S. Ct. 1727 (2007) decision that was cited by the appellant, it is well within the scope of one of ordinary skill to recognize that "where" the coding occurs can easily be modified to occur in the receiver, transmitter or any components shared between the receiver and transmitter.

Uesugi teaches that the TPC (power control signals Fig. 17 [1107 & 1207]) data is created from the SIR measuring instrument (Fig. 17 [1108 & 1208]) and then encoded with pilot symbols (P's) and the other data (D0-D6) in the first slot of a transmission frame (Col. 3 lines 16-19, Col. 4 lines 6-7, Fig. 16A and Fig. 16B) prior to transmission.

With respect to the appellant's claim limitation "with the addition of redundancy", the examiner would like to reiterate the opinion that the object of the "redundancy" is not

clearly claimed. The appellant could easily have amended the claim to state "redundantly coding, in the receiver, the power control information..." or "the power control information is coded redundantly", which would clearly inform anyone reading the independent claims exactly what information is being coded redundantly. However, as currently claimed, it is the examiner's position that Uesugi's disclosure of "the same data as the transmission data is repeatedly transmitted along with the transmission controlling information" (Fig. 16B and Col. 19 lines 46-52) meets the appellant's "with the addition of redundancy" limitation since the data is coded redundantly into the first slot. (Fig. 16B [DO, DO, D1, D1...])

With respected to the appellant's claim limitation "together with the further data to be transmitted in the same time slot to form a common data word", Uesugi teaches that the TPC (power control signals Fig. 17 [1107 & 1207]) data is encoded with pilot symbols (P's) and the other data (D0-D6) in the first slot of a transmission frame (Col. 3 lines 16-19, Col. 4 lines 6-7, Fig. 16A and Fig. 16B), which the examiner views as anticipating forming a common data word with further data and power control information.

In response to the appellant's argument that *Hogan clearly bears no relation to power control and does not disclose that one bit value in the data word depends on the power control information and on the further data* (Page 12), the examiner disagrees.

As an initial matter, the examiner never stated Hogan teaches power control. The examiner relies on Hogan for teaching error coding correction while utilizing the

exclusive–OR logic operation (which is cited in the appellant's disclosure as a preferred logic operation on Page 7 line 27 through Page 8 line 31) and because of "the isolated fact that ECC bits are related to the codeword through the XOR function", as clearly stated by the appellant. (Page 12 last Para) The value of an ECC bit is determined by the information being coded, which is why the ECC bit depends upon the power control information and further data, as cited by the appellant.

XOR logic works as follows: (P=0, F=0, then P XOR F= 0); (P=1, F=0, then P XOR F= 1); P=1, F=0, then P XOR F= 1); (P=1, F=1, then p XOR F= 0) Following the preceding logic, if P represents the power control and F represents the further data, P XOR F would equal the ECC bit, which is then added to the transmission and used to ensure the decoded frame was received correctly. If P=0, F is skewed from interference and ECC=1 was received, then simple error correction can be used to determine that F=1. This is why the examiner believes one of ordinary skill in the art would be motivated to implement error correction coding because the need to retransmit was eliminated because of the addition of the ECC bit.

In response to appellant's argument that *Uesugi and Hogan are disparate* (Page 13), it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the appellant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, the examiner believes Hogan is reasonably pertinent to the

particular problem with which the appellant is concerned because implementing error correction coding can reduce the need to retransmit information because of the addition of the ECC bit. Further support can be seen above in the examiner's explanation of implementing XOR logic.

In response to the appellant's argument that *the relevance of this passage is entirely unclear, and it is not understood what type of "encryption" this refers to* (Page 13), the examiner disagrees.

As an initial matter, the appellant has mistakenly quoted the examiner from the Advisory Action mailed 8/20/2007. The correct quote should state "an encryption scheme is as simple as representing a 1 as a 1 and a 0 as a **-1**", which is the basis for implementing digital communication transmissions of binary numbers. With respect to how the XOR function would be implemented, XOR logic works as follows: (P=0, F=0, then P XOR F= 0); (P=1, F=0, then P XOR F= 1); P=1, F=0, then P XOR F= 1); (P=1, F=1, then p XOR F= 0)

Following the preceding logic, if P represents the power control and F represents the further data, P XOR F would equal the ECC bit, which is then added to the data transmission and used to ensure the decoded frame was received correctly. If P=0, F is skewed from interference and ECC=1 was received, then simple error correction can be used to determine that F=1. This is why the examiner believes one of ordinary skill in the art would be motivated to implement error correction coding because the need to retransmit was eliminated because of the addition of the ECC bit.

In response to the appellant's argument that *incorporating Hogan into Uesugi would "reduce the need for retransmission of lost data," which runs expressly counter to the teaching in Uesugi, since retransmission is needed to be able to distinguish between different data rates* (Page 13), the examiner disagrees.

Uesugi teaches transmitting the same data symbol repeatedly two times (Page 19 lines 49-51) because the data transmission rate is low. (*i.e.* there isn't a lot of information to transmit Col. 2 lines 22-24) Uesugi teaches the size of the data frame is constant (Fig. 15A & Fig. 15B) whether there is a lot of information to transmit or not. In order to distinguish the data rates (because the frame size doesn't change), Uesugi permits transmitting data redundantly as an identifying trait, which is a separate issue and different from the motivating factor of trying to reduce the retransmission of lost data due to interference. The examiner believes one of ordinary skill in the art would be motivated to implement Hogan's error correction coding into the transmission system of Uesugi because the amount of data lost to interference can be reduced because of the addition of the ECC bit, as can be seen in the example listed above.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons and the response to arguments listed in the Advisory Action, it is believed that the rejections should be sustained.

Respectfully submitted,

/Matthew C. Sams/

Examiner, Art Unit 2617

Conferees:

George Eng
Supervisory Patent Examiner

/George Eng/

Supervisory Patent Examiner, Art Unit 2617

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